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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/402,112    02/18/00    KAWAKAMI

S    FUK-63

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EXAMINER

VERSTEEG, S

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 10/09/01

*15*

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/402,112

Applicant(s)

KAWAKAMI ET AL.

Examiner

Steven H VerSteeg

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 7-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 06 August 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Drawings***

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 6 August 2001 have been approved.

### ***Election/Restrictions***

2. This application contains claims 1-4 and 7-18 drawn to an invention nonelected with traverse in Paper No. 9. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Specification***

3. The amendment filed 6 August 2001 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the subject matter inserted on page 28, line 24 is considered to be new matter. The paragraph inserts matter in an attempt to define what subject matter is covered by the claims and is considered to be new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 5 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by *Fabrication of submicrometre 3D periodic structures composed of Si/SiO<sub>2</sub>* by Kawakami.

6. For claim 5, Applicant requires a three dimensional periodic structure that is fabricated by sequentially and periodically forming at least two kinds of layers including a layer mainly of SiO<sub>2</sub> and a layer mainly of Si on a substrate having a two-dimensionally periodically recessed or projecting portions. It is formed by carrying out sputtering and sputter etching alternatively or simultaneously at least in a part of the forming while keeping a pattern of the recessed or projecting portions.

7. For claim 6, Applicant claims a method of fabricating a three-dimensional periodic structure by sequentially and periodically forming at least two kinds of layers including a layer mainly of SiO<sub>2</sub> and a layer mainly of Si on a substrate having a two-dimensionally periodically recessed or projecting portions. It is formed by carrying out sputtering and sputter etching alternatively or simultaneously at least in a part of the forming while keeping a pattern of the recessed or projecting portions.

8. Kawakami discloses a 3D structure (title). The structure is made by alternately depositing silicon dioxide and silicon onto the substrate (page 50). The layers are formed by bias sputtering which involves sputter deposition and sputter etching occurring simultaneously (page 50). The structures have two-dimensionally periodically recessed or projecting portions (Figure 3). Therefore, Kawakami discloses the structure of claim 5 (the 3D structure with the alternating layers of silicon and silicon dioxide) and the method of making the 3D structure claimed in claim 6 (and by way of a product by process in claim 5).

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9. Claim 5 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,600,483 to Fan *et al.* (Fan).

10. Claim 5 is described above in Paragraph 9. Fan discloses a three dimensionally structure (title). The structure comprises alternate layers of silicon and silicon dioxide (col. 3, l. 17-26). The layers have two-dimensionally periodically recessed or projecting portions (Figure 1). The method of making the structure involves sputter depositing the Si layer and etching it and then, depositing the silicon dioxide without etching. Thus, the method of making the structure is different than the method utilized in the product-by-process method of claim 5. Because the resulting structure appears to be the same as claimed by Applicant, it is obvious, if not inherent, that the same structure claimed by Applicant in claim 5 is present in Fan.

***Response to Amendment***

11. The amendment filed 6 August 2001 and subsequent response filed 6 September 2001 has been entered in part. The amendment to page 7, lines 24-30 has not been entered. Applicant has not provided a clean copy of the paragraph. Applicant is directed to page 4 of the section of the response titles "In the specification" and page 3 of the response section entitled "Clean Specification Paragraphs". Applicant has stated that they have in fact filed clean specification paragraphs (see response filed 6 September 2001), but no clean copy of page 7, lines 24-30 has been filed in the instant application.

12. The objection to the drawings presented in the office action mailed 6 February 2001 is withdrawn in light of the proposed drawings correction.

13. The objection to the specification presented in the office action mailed 6 February 2001 is withdrawn in light of the amendment.

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14. The 102(a) rejection of claims 5 and 6 over *Fabrication of submicrometre 3D periodic structures composed of Si/SiO<sub>2</sub>* by Kawakami presented in the office action mailed 6 February 2001 stands.

15. The 102(b)/103(a) rejection of claim 5 over US 5,600,483 to Fan *et al.* (Fan) presented in the office action mailed 6 February 2001 stands.

***Response to Arguments***

16. Applicant's arguments filed 6 August 2001 and 6 September 2001 have been fully considered but they are not persuasive.

17. Applicant has first argued that Kawakami is not prior art against their invention because the publication date of Kawakami is July 1997 and they have a priority date of 29 March 1996. The examiner disagrees. Applicant has a PCT filing date of 24 March 1998 (which is after the publication of Kawakami). Applicant claims priority of two separate documents for 29 March 1997 and 23 February 1998. Applicant has not perfected priority to 29 March 1997. To perfect priority, the single document of 29 March 1997 must contain the limitations of the claimed subject matter to perfect priority. Applicant is directed to MPEP 2132.01 and 706.02(b) for instructions on overcoming a rejection under 35 USC 102(a).

18. Applicant then argues that Fan does not anticipate the claimed invention because Fan uses a different method. Applicant has claimed a product by process and is arguing that because a different process is used to make the product in Fan than that claimed by Applicant, the rejection over Fan should be withdrawn. Applicant is directed to MPEP 2113 for a complete discussion of product by process claims and potential ways to distinguish product by process claims from prior art. The examiner has shown that the product claimed is the same as the

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product of Fan. The method of making the products are different. Applicant needs to show that the process that makes their product will result in a different product.

19. Applicant finally argues that Fan's product is different from their Figure 1. It doesn't matter if the figures are different. Applicant is comparing the wrong items. Applicant needs to compare the claim to the invention of Fan. Fan discloses a three-dimensional periodic structure with silicon dioxide layers alternating with silicon layers with two-dimensionally periodically recessed or projecting portions. Those are the product limitations of claim 5, and Fan teaches all of the product limitations of the product by process claim. Therefore, the rejection is proper.

### *Conclusion*

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (703) 305-4473. The examiner can normally be reached on Mon - Thurs (7:30 AM - 5:00 PM) & alternate Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven H VerSteeg

Examiner

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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

shv

October 5, 2001